

Amendments to the Claims

Please amend claims 1-3, 8, 9, 12, 14, 15, 17, 19-24, 26, 30, 34-37, 39-52, 54-56, 61, 66, and 70-72. Please cancel claims 6, 7, 18, 38, 53, and 64-65. Please add new claims 74-83. The Claim Listing below will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) A process of propagating viewing assets to a system of video servers, the process comprising:

generating a propagation priority for a selected viewing asset that represents a predicted economic value of propagating the selected viewing asset to a target video server, the propagation priority comprising a first priority associated with the viewing asset and a second priority associated with the target video server;

generating a retention value for one or more viewing assets presently stored on the target video server, each retention value representing a predicted economic value of retaining a replica of a corresponding viewing asset on the target video server; and

copying a missing portion of a replica of [[a]] the selected viewing asset to [[a]] the target video server in response to determining that the propagation priority of the selected viewing asset exceeds a sum of retention values of the one or more stored viewing assets on the target video server.

~~a propagation priority representing a predicted economic value of propagating the selected asset to the target server is higher than~~
~~a retention value representing a predicted economic value of retaining a replica of one or more viewing assets stored on the target server.~~
2. (Currently amended) The process of claim 1, wherein copying a missing portion comprises writing the missing portion of the replica of the selected asset onto a storage region of the target video server on which is already stored [[the]] a replica of one or more viewing assets.

3. (Currently amended) The process of claim 1, further comprising: selecting a portion of the replica of one or more viewing assets in response to the portions of the replica of one or more viewing assets having a total data size of at least as large as a data size of the missing portion of the selected asset.
4. (Previously presented) The process of claim 1, wherein copying of the missing portion of the replica of a selected asset includes the copying the missing portion from one or more video servers.
5. (Previously presented) The process of claim 1, further comprising:
assigning propagation priorities to a plurality of viewing assets;
ranking the viewing assets according to the assigned priorities; and
selecting an asset in response to the asset having a rank higher than a preselected minimum rank.
6. (Canceled)
7. (Canceled)
8. (Currently Amended) The process of ~~claim 5~~ claim 1, wherein ~~[[the]]~~ a portion of a replica of one or more viewing assets ~~consists of~~ comprises replicas of asset elements belonging to one or more ELists.
9. (Currently Amended) The process of ~~claim 3~~ claim 1, further comprising: updating retention values of replicas of viewing assets remaining on the target server in response to the copying of the missing portion of the replica of the selected viewing asset.

10. (Previously presented) The process of claim 1, further comprising selecting the viewing assets to include video files for at least one of the movies, news emissions, and shopping emissions.
11. (Original) The process of claim 1, wherein the replica of one or more viewing assets includes a replica of an asset element shared by replicas of two assets on the target server.
12. (Currently Amended) A process for propagating digital viewing assets to video servers, the process comprising:
 - assigning one or more propagation priorities to each of a plurality of digital viewing assets, ~~a propagation priority~~ the one or more propagation priorities for a corresponding viewing asset being indicative of an economic value of propagating the viewing asset onto one or more video servers, each propagation priority comprising a first priority associated with the viewing asset and a second priority associated with a corresponding target video server;
 - ranking the viewing assets based on the assigned propagation priorities; and
 - propagating, to one or more ~~selected~~ of the video servers, those viewing assets having a ranking that exceeds a preselected minimum ranking.
13. (Previously presented) The process of claim 12, wherein assigning a propagation priority includes:
 - assigning, a viewing asset to a usage class, the usage class providing a portion of an initial value for propagation priorities associated with assets assigned to the class.
14. (Currently amended) The process of ~~claim 13~~ claim 12, further comprising:
 - accumulating usage data on individual assets stored on the video servers; and
 - updating the propagation priorities based on the usage data.

15. (Currently amended) The process of ~~claim 13~~ claim 12, wherein the viewing assets include ~~one of~~ encoded digital video assets, ~~and~~ encoded digital audio assets, or combinations of both encoded digital video assets and encoded digital audio assets.
16. (Previously presented) The process of claim 14, wherein the usage data included data indicative of viewer demand and data indicative of change in viewer demand.
17. (Currently Amended) The process of claim 14, further comprising: updating the propagation priority of a particular asset in ~~the~~ a usage class based on a difference between ~~the~~ a usage level of the usage class and a usage level of the particular asset determined from the accumulated usage data.
18. (Canceled)
19. (Currently Amended) The process of ~~claim 13~~ claim 12, further comprising: streaming a replica of the copied one of the assets from the particular video server to a television of a viewer in response to receiving a request to deliver the asset.

20. (Currently Amended) A process of propagating viewing assets to a target video storage, the process comprising:
- assigning propagation priorities to viewing assets, each of the propagation priorities being predictive of an economic value associated with propagating [[an]] a viewing asset to a target video storage, each of the propagation priorities comprising a first priority associated with the viewing asset and a second priority associated with the target video storage;
 - constructing a table of element deletion lists for [[a]] the target video storage;
 - selecting a group of element deletion lists from the table, the group having a data size at least as large as a data size of a portion of a replica of another viewing asset not stored on the target video storage; and
 - copying the portion of the replica of the another viewing asset onto the target video storage in response to the propagation priority of the another viewing asset ~~being larger than~~ exceeding a retention value of the group.
21. (Currently Amended) The process of claim 20, wherein ~~the copying writes the portion of the replica comprises writing~~ the portion onto a region of the target video storage previously storing the group.
22. (Currently Amended) The process of claim 20, wherein ~~the~~ selecting a group includes constructing a table ~~[listing]~~ that lists sets of element deletion lists with lower retention value than the propagation priority of the another asset.
23. (Currently Amended) The process of claim 22, wherein ~~the~~ selecting a group includes picking one of the lists having a data size at least as large as the portion of the replica on the another asset.
24. (Currently Amended) The process of claim 20, further comprising: updating the table of element deletion lists ~~in response to performing the~~ after copying the portion of the replica of the another asset.

25. (Original) The process of claim 20, wherein each element deletion list includes a set of replicas of asset elements that are shared by the same assets.
26. (Currently Amended) A process of distributing viewing assets to viewers, the process comprising:
 assigning propagation priorities to viewing assets, the propagation priorities being predictive of an economic value associated with distributing the ~~associated~~ viewing assets to a plurality of video servers accessible to viewers, each of the propagation priorities comprising a first priority associated with a viewing asset and a second priority associated with one of the plurality of video servers;
 selecting a target video server; and
 copying one of the viewing assets onto the target video server in response to determining that the propagation priority associated with the one of the viewing assets is ~~greater than~~ exceeds a retention value associated with a set replicas of viewing assets stored on the target video server, the replicas occupying enough space to store the one of the viewing assets, the retention value being predictive of an economic value of retaining the set of replicas.
27. (Previously presented) The process of claim 26, wherein copying one of the assets includes searching for one or more sets of replicas of asset elements to delete from a table of element deletion lists.
28. (Original) The process of claim 26, further comprising: updating the retention values in response to anticipated changes in viewer request levels for assets.
29. (Previously presented) The process of claim 28, further comprising: accumulating data on usage of individual ones of the assets, and updating the retention values based on least in part on the accumulated data.

30. (Currently Amended) An interactive television system, comprising:
- a communication channel selected from the group ~~consisting of~~ comprising a network ~~and or~~ a bus;
 - a plurality of video servers to store digital replicas of viewing assets for viewers, the video servers being connected by the communication channel; and
 - a control unit connected to the video servers and configured to control copying of a missing portion of a replica of a selected viewing asset to ~~one of the video servers~~ a target video server in response to ~~an~~ a first economic value of propagating the selected viewing asset onto the target server ~~being higher than an~~ exceeding a second economic value of retaining a replica of one or more other viewing assets already stored on the ~~one of the servers~~ target server, the first economic value comprising a first priority associated with the selected viewing asset and a second priority associated with the target video server.
31. (Original) The system of claim 30, wherein the control unit is further configured to record usage data for the assets stored on each of the local video storages.
32. (Previously presented) The system of claim 30, further comprising: a plurality of distribution networks to provide channels for delivering viewing assets to viewer televisions, each distribution network connected to a subset of the video servers.
33. (Original) The system of claim 30, wherein the control unit is configured to accumulate usage data on viewing assets from the video servers.
34. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 1.

35. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 3.
36. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 4.
37. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 5.
38. (Canceled)
39. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 8.
40. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 9.
41. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 12.
42. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of

claim 13.

43. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 14.

44. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 16.

45. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 17.

46. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 18.

47. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 20.

48. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 22.

49. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 23.

50. (Currently Amended) A program storage media storing computer executable instructions operable to cause data processing apparatus to execute ~~for executing~~ the process of claim 25.
51. (Currently Amended) A process for propagating digital viewing assets to video servers, the process comprising:
 propagating a plurality of viewing assets to video servers based on propagation priorities ~~for propagating the viewing assets~~, each of the propagation priorities comprising a first priority associated with a viewing asset and a second priority associated with one of the video servers, the propagation priorities providing a ranking of the viewing assets on the basis of predicted economic values associated with propagation of the viewing assets;
 accumulating usage data on individual ones of the viewing assets stored on the video servers; and
 updating the propagation priorities based in part on the usage data.
52. (Currently amended) The process of claim 51, further comprising: assigning a viewing asset to a usage class, the usage class providing a portion of an initial value for the propagation priorities ~~to propagate for~~ of the assets assigned to the class.
53. (Canceled)
54. (Currently amended) The process of ~~claim 53~~ claim 52, wherein the ~~global~~ first priority is based in part on a counter value, the counter value measuring usage of the selected one of the assets.
55. (Currently amended) The process of ~~claim 53~~ claim 52, wherein the ~~local~~ second priority is based in part on a bandwidth for streaming the selected one of the assets from the one of the video servers to a set of viewers.

56. (Currently Amended) A process for propagating viewing assets, the process comprising:
generating a propagation priority for a selected viewing asset that represents a predicted economic value of propagating the selected viewing asset to storage of a target device, the propagation priority comprising a first value associated with the viewing asset and a second priority associated with the target device;
generating a retention value for one or more viewing assets presently stored on the target device, each retention value representing a predicted economic value of retaining a replica of a corresponding viewing asset on the target device; and
_____ copying a missing portion of a replica of [[a]] the selected viewing asset to the storage of [[a]] the target device in response to determining that [[a]] the propagation priority of the selected viewing asset predictive of an economic value of propagating the selected asset to the target device is higher than exceeds the [[a]] the retention value predictive of an economic value of retaining a replica of for the one or more viewing assets stored on the target device.
57. (Previously presented) The process of claim 56, wherein copying a missing portion of a replica further comprises: writing the missing portion of the replica of the selected asset onto a portion of the storage medium of the target device on which is previously stored a portion of the replica of one or more viewing assets.
58. (Original) The process of claim 56, further comprising: selecting a portion of the replica of one or more viewing assets in response to the replica of one or more viewing assets having a data size at least as large as a data size of the missing portion of the selected asset.
59. (Original) The process of claim 56, wherein copying the missing portion of the replica of a selected asset further comprises: copying the missing portion from one or more storage devices.

60. (Original) The process of claim 56, wherein copying the missing portion of the replica of a selected asset further comprises: copying the missing portion from one or more video servers.
61. (Currently amended) The process of claim 56, further comprising:
 assigning propagation priorities to a plurality of viewing assets;
 ranking the viewing assets according to the assigned propagation priorities; and
 selecting an asset in response to the asset having a rank ~~higher than~~ exceeding a preselected ~~minimum~~ rank.
62. (Previously presented) The process of claim 56, further comprising:
 constructing a table of element deletion lists for the target device; and
 selecting a group of element deletion lists from the table, the group having a data size at least as large as a data size of a portion of a replica of another asset not stored on the storage of a target device.
63. (Original) The process of claim 56, further comprising selecting the target device to be a target video asset device.
64. (Canceled)
65. (Canceled)
66. (Currently amended) The process of ~~claim 61~~ claim 62, wherein the portion of a replica of one or more viewing assets includes replicas of asset elements belonging to one or more element deletion lists.

67. (Original) The process of claim 56, further comprising: updating retention values of replicas of viewing assets remaining on the target device in response to the copying.
68. (Original) The process of claim 56, further comprising selecting the viewing assets to include digital information for at least one of movies, news emissions, and shopping emissions.
69. (Original) The process of claim 58, further comprising selecting viewing assets to include information represented as encoded data files.
70. (Currently Amended) A process for propagating digital viewing assets to target devices, the process comprising:
 assigning propagation priorities to propagate a plurality of digital viewing assets to target devices, each of the propagation priorities being predictive of an economic value of propagating a particular asset to a particular target device, each propagation priority comprising a first priority associated with the particular asset and a second priority associated with the particular target device;
 ranking the assets based on the assigned priorities; and
 propagating one of the assets to one or more ~~selected of the~~ target devices in response to the one of the assets having a rank ~~higher than~~ exceeding a preselected minimum ranking.
71. (Currently amended) The process of claim 70, wherein assigning propagation priorities comprises:
 assigning a viewing asset to a usage class, the usage class providing a portion of an initial value for the first priority of ~~priorities to propagate~~ assets assigned to that class.
72. (Currently amended) The process of claim 70, further comprising:
 accumulating usage data on individual assets stored on the target devices; and

updating the propagation priorities to ~~propagate the assets to the target devices~~
based on the usage data.

73. (Original) The process of claim 70, wherein the viewing assets include at least one of encoded digital viewing assets and encoded digital audio assets.
74. (New) The process of claim 1, wherein the retention value comprises:
 - a first value associated with the viewing asset and indicative of an economic value of retaining a set of replicas of the viewing asset on the video servers; and
 - a second value associated with the target video server and indicative of an economic value of retaining the set of replicas on the target video server.
75. (New) The process of claim 1, wherein the first priority is calculated based on one or more first components associated with a user demand for the selected asset.
76. (New) The process of claim 75, wherein the one or more first components comprise short-term viewer demand, medium-term viewer demand, total number of requests, last-request-time, usage class data, or any combination thereof.
77. (New) The process of claim 76, wherein each of the one or more first components is associated with a coefficient indicative of an importance associated with a particular first component.
78. (New) The process of claim 77, wherein the coefficient associated with each of the one or more first components can be configured by a user.
79. (New) The process of claim 1, wherein the second priority is calculated based on one or more second components associated with a local environment of the target video server.

80. (New) The process of claim 79, wherein the one or more second components comprise asset classification, number of replicas available to the target video server, number of replicas stored on the target video server, load on the target video server, available delivery paths to stream the selected asset to users, available bandwidth between the target video server and users, processing speed available to the target video server, or any combination thereof.
81. (New) The process of claim 80, wherein each of the one or more second components is associated with a coefficient indicative of a weight associated with a particular second component.
82. (New) The process of claim 81, wherein the coefficient associated with each of the one or more second components can be configured by a user.
83. (New) The process of claim 1, wherein the retention value comprises a third priority associated with the one or more viewing assets and a fourth priority associated with the target video server.